

COASTAL HERITAGE

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**Building
Green** 
A new path

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ON THE COVER: *At the University of South Carolina's West Quad residence complex, students hustle across an innovative sidewalk that allows rainwater to filter into soil instead of pouring down storm drains. PHOTO/WADE SPEES*

CERTIFIED WINNER.

The U.S. Green Building Council certified that the Cox and Dinkins, Inc., office in Columbia was designed and constructed to reduce resource use and protect occupant health.

PHOTO/WADE SPEES



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Building Green

A new path

By John H. Tibbetts

UP ON THE ROOF. On the rooftop of the University of South Carolina's West Quad residence hall, solar tubes heat water supplies for about 500 students. "Solar tubes are not cheap to install," says Michael Koman, environmental program manager with the university's Housing Department. "But they pay for themselves in lower energy costs in four to seven years." PHOTO/WADE SPEES

They're handsome in a traditional, modest, almost bland way. Nothing flashy. The four blond-brick, Georgian-style buildings weren't designed to turn heads or make grand aesthetic statements. Instead, they blend in quietly with older structures on the University of South Carolina (USC) campus.

Look closer, though, and you'll find plenty of surprises and innovations at West Quad, a 172,000-square-foot, \$30.9 million residence-hall complex that opened in November 2004. The complex reflects a green revolution sweeping South Carolina's higher-education institutions, transforming how academic buildings are designed and constructed.

On a West Quad rooftop, solar-power tubes provide hot water for residents. Above the "living-and-learning center," a fuel cell generates backup power, and a turf roof absorbs summer heat and cools rooms inside.

Building materials include low- or no-volatile organic compound (VOC) paint, carpet, adhesives, and laminates. Motion sensors detect whenever anyone enters and exits a room, turning lights on and off accordingly. Rooms are filled with daylight, though without distracting glare, and they have continuous flow of fresh air and operable windows.

"They are some of the healthiest buildings in the state," says Michael Koman, environmental program manager with the USC Housing Department.

The greening of academia has arrived at an opportune time as energy bills rise. Colleges and universities are recognizing the benefits of designing and constructing high-performance buildings, which reduce operating and maintenance costs, minimize impacts on the environment, provide healthier and more productive places to study and work, and offer learning opportunities for students.



INCENTIVES NEEDED FOR GOOD DESIGN

South Carolina should have government incentives to build green commercial buildings, says Gene Dinkins, president of Cox and Dinkins, whose surveying-and-engineering firm constructed the first LEED-certified commercial building in the state.

New York, New Jersey, Maryland, and Oregon are among states that offer significant green-building tax credits, but South Carolina does not.

Soon a new federal energy bill, signed into law by President Bush, will provide a tax credit of up to \$1.80 per square foot for commercial and institutional buildings that exceed an industry standard of energy efficiency for heating-ventilating-air-conditioning (HVAC) systems. The new credit went into effect Jan. 1, 2006.

South Carolina's statewide building code requires that all commercial structures exceed the stringent HVAC standard. As a result, new commercial and institutional buildings, if they pass inspection, would be eligible for the tax credit, says Sonny Dubose, project manager for the S.C. Energy Office.

The federal energy bill also provides homebuilders with a \$2,000 tax credit for each energy-efficient house constructed, though the complexities of the bill's provisions are still being worked out.

Utilities should also offer owners of green commercial buildings "some kind of incentive," says Dinkins. "What kills energy companies is peak demand," and green buildings can help reduce these demand spikes.

Studies show that certain indoor environments can suppress student learning and worker productivity far more than previously realized. When people work or study in uncomfortable, artificially lit spaces, their concentration suffers.

Building green is also a cost-effective way for academic institutions to highlight their educational mission and build leadership in technical innovation.

But aren't colleges and universities considered small beer in the building industry? Not anymore. An academic construction boom nationwide—totaling \$13.7 billion in 2004—is helping to bring environmentally conscious building into the mainstream.

Government—federal, state, and local—is the largest driving force behind sustainable design nationally. But, in South Carolina, higher education is the pacesetter. Consortium member institutions USC and Clemson University are two of the leading competitors for the title of the most active builder of high-performance structures in South Carolina.

"The rivalry between USC and Clemson has something to do with it," says Trish Jerman, program manager of the Sustainable Universities Initiative, a partnership among several higher-education institutions in the state.

Furman University was the first to build a green institutional building in the state. Consortium members Coastal Carolina University, College of Charleston, and Medical University of South Carolina, plus Francis Marion University, Piedmont Tech, Winthrop University, and York Tech have all built or are planning sustainable buildings.

When baby boomers flocked to campuses in the 1960s and 1970s, universities built labs and dorms to accommodate them. By the 1980s, enrollment nationwide had flattened. Now, enrollment is rising again as the boomers' children reach college age, although in inflation-adjusted terms college costs are roughly three times higher than during the 1970s.

Universities are renovating older dorms, classrooms, and laboratories, or building new ones, while also addressing new requirements for information technology. It's often less expensive to build a new building than retrofit an out-dated structure.

Gerald Vander Mey, campus master planner for Clemson, says, "It became evident to the university that constructing high-performance buildings was a smart thing to do. A high-performance building will pay for itself many times over compared to standard construction. It also made sense from the perspective of the health and well-being of the people who would work in these buildings."

Academic institutions face a bottom-line squeeze as they aim to please a new kind of demanding consumer—the student or parent paying tuition bills.

The higher-education marketplace has become ruthlessly competitive. The *U.S. News & World Report* annual ranking of every college and university in the country gives administrators heartburn. State financial support is down. Colleges and universities must market their finest qualities—known as branding in advertising jargon—to recruit the best students who often look for institutions with up-to-date facilities.

Student expectations have changed since the lava-lamp era. Today's typical undergraduate doesn't want a traditional dorm, sharing a bathroom with 40 other students.

"It's a different generation—they want more privacy, more space, and more convenience," says Alan Hargrave, director of housing and residence life at Ball State University, and president of the Association of College and University Housing Officers-International.

According to a recent survey by *College Planning & Management* magazine, 90 percent of college-housing officers said that new residence halls will offer apartments or shared suites.

Young people today are likelier to have special health needs than their parents did. Says Hargrave, "One of the primary reasons for creating healthier buildings is that more and more students have asthma and breathing difficulties."

Since the green-building movement got rolling in the mid-1990s, skeptics have asked some basic questions. What exactly is a sustainable building? Does green construction cost more upfront? How much more? Is going green really worth the trouble and the savings down the road?

Until recently it was hard to prove that a building was very green. Or mostly green. Or somewhat green.

So the U.S. Green Building Council, established in 1993, set to work on a comprehensive standard for

sustainable design and development. The council is a group of corporations, builders, government agencies, universities, and non-profit organizations that promote environmentally responsible building.

In 2000, the council rolled out the LEED (Leadership in Energy and Environmental Design) Green Building Rating System for commercial and institutional buildings. Third-party analysts use LEED guidelines to rate how a building performs in environmental terms.

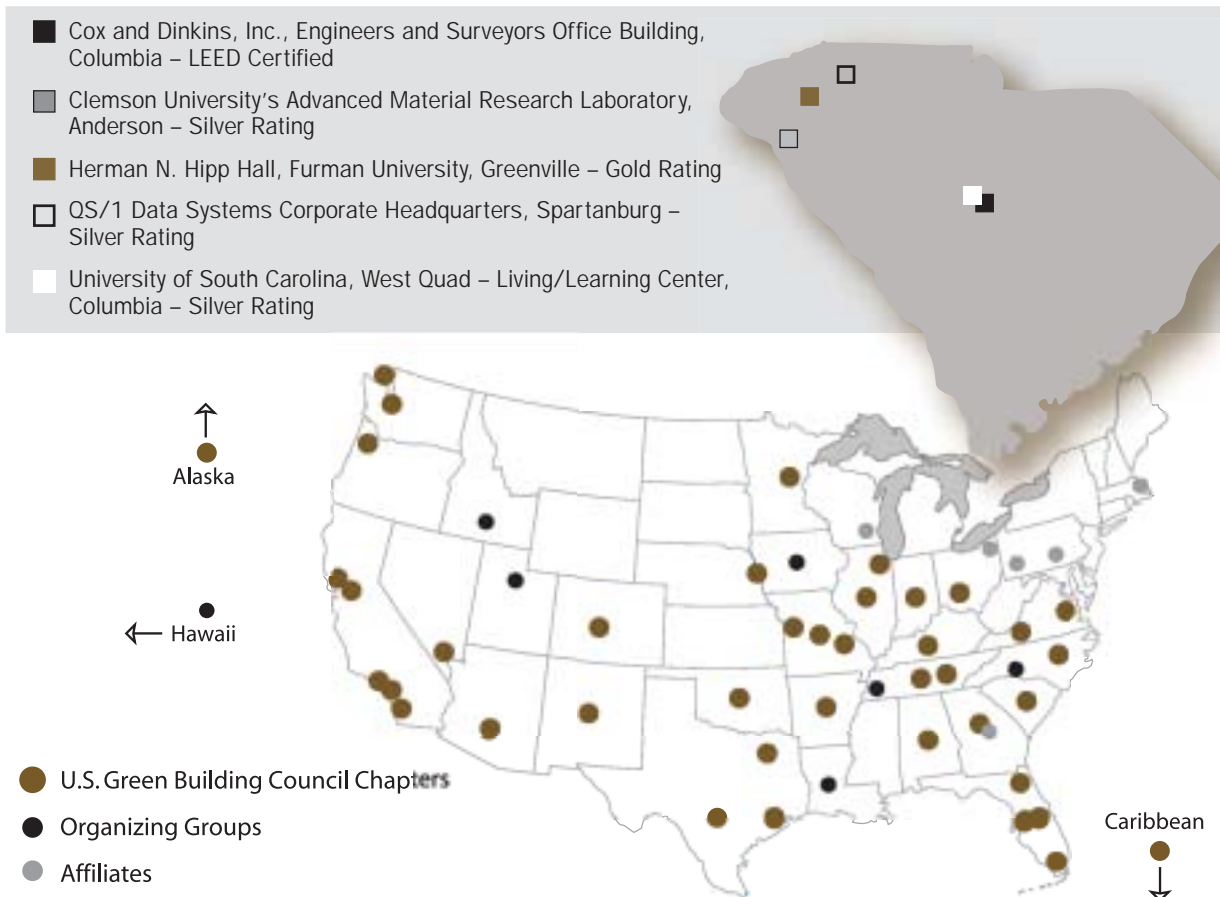
LEED ratings are based on a points system. Points are given for sustainable-site development, water savings, energy efficiency, materials selection, and indoor environmental quality.

If a building wins 26 of 69 available points, it is awarded LEED certification. Building owners can also shoot for higher ratings beyond certification—silver, gold, and platinum.

More than 2,160 buildings nationwide are registered in the program, meaning that owners intend to seek certification. So far, 266 have been certified. The program has gone international, as well. More than 100 projects are registered outside the United States.

"LEED is the best catalyst for green building," says Alexis Karolides, an architect with the Rocky Mountain Institute, a non-profit organization promoting sustainable development, based in Snowmass, Colorado.

A growing number of buildings in South Carolina are winning Leadership in Energy and Environmental Design (LEED) certification from the U.S. Green Building Council, which has 51 chapters nationwide.



USC's West Quad has received a silver LEED rating. And Clemson University earned silver for its new Advanced Materials Research Center. Clemson has committed to gaining certification for all new buildings and major renovations.

Creating high-performance buildings, administrators say, is definitely worth the planning effort. Planning, design, and construction costs for West Quad were \$2 less per square foot, after accounting for inflation, than the conventional dorm complex of a similar size called East Quad across the street.

The West Quad complex saves \$60,000 to \$80,000 per year from energy-and-water bills. Savings will grow because West Quad was built with high-quality materials and therefore should have lower maintenance costs, says Koman.

To gain certification, planners can't just squeeze disparate, unrelated green features into a construction budget. Instead, the building should be created as a single integrated system. "The process by which you green a building is just as important as the (sustainable) features you put in it," Karolides says.

The U.S. building industry has long been criticized for its lack of whole-systems thinking—for its lack of collaboration among various trades and professionals, its piecemeal approach to design and construction, and its overriding goal of controlling costs upfront. Especially during boom periods of construction, many developers and builders jump from one project to the next, making profits in a brutally competitive marketplace by working as inexpensively as possible while complying with minimum codes and standards.

Focusing on the "first cost" or upfront expenses of a project is standard operating procedure in the building industry. As a result, various building trades and disciplines do not work in concert as much as they should, according to Michael K.

GERALD VANDER MEY

"A high-performance building will pay for itself many times over compared to standard construction."

Mantai, an engineer and president of System Worcx, a building commissioning service.

Think of the people who work on a large commercial or institutional building: owner, developer, architect, structural engineer, general contractor, electrical engineer, electrical contractor, mechanical engineer, mechanical contractor, plumbing and fire-protection and voice-data system and security-system contractors, plus dozens of subcontractors for flooring, drywall, and on and on.

"Who coordinates all of the pieces?" asked Mantai. "There are so many gaps between the disciplines. Buildings get built, and they're dysfunctional."

Major construction projects are becoming more complex. Builders have to manage indoor-air-quality requirements, mold concerns, faster-than-ever construction schedules, cheaper materials, more elaborate mechanical systems, and less-available skilled labor and subcontractors.

Some owners discover that their completed structures require 35 percent more energy to heat and cool than original designs had called for, says Mantai.

That's why the LEED process emphasizes careful planning at the front end of a project. A project team, which meets frequently

throughout the design and construction process, asks a series of questions. Who will use the structure? What are the most important needs of the occupants? How can the different parts of the project be integrated to save energy and other resources?

Energy conservation is at the heart of the LEED system. Almost half of the points needed for certification can be gained by using energy-saving techniques. But a project team can also focus on issues such as indoor-air quality and water conservation, among others.

To save energy, a project team will likely choose high-efficiency windows and light fixtures, eliminate leaks by improving wall and roof insulation, and provide features that allow in more natural light, thereby reducing unnecessary heat from overhead artificial lighting.

These features should allow a green building to have a far smaller heating, ventilating, and air-conditioning (HVAC) system than that of a conventional building.

Alex Wilson, executive editor of *Environmental Building News*, a newsletter based in Brattleboro, Vermont, points out that green buildings commonly use less than half as much energy as conventional ones, and some use less than one-fourth as much.

MARKETING GREEN

Considering its brief history, the LEED program has become remarkably influential—it is the most widely used tool to encourage green design and certify the environmental performance of buildings, landscaping, and their relationships to the surrounding communities. Last year, the program got a boost in South Carolina with the creation of a U.S. Green Building Council state chapter.

LEED is so successful because it reflects a coalition of interests including builders, developers, and environmentalists, says Daniel Abel, director



SOLAR SAVERS. *South Carolina's colleges and universities are turning to green technologies to control spiraling utility bills. "We're using standard systems with track records," says Michael Koman of the University of South Carolina Housing Department, pointing to solar tubes on the roof of a West Quad residence hall. Solar tubes, which inexpensively heat water, are an "advanced, basic technology that requires low maintenance and has a quick financial payback."* PHOTO/WADE SPEES

of Coastal Carolina University's Center for Campus and Community Sustainability. "It's a consensus standard that is practical."

Commercial green buildings have been created outside of LEED, though its certification is the most recognized and respected seal of quality, somewhat like a top review for a car in *Consumer Reports* magazine.

Rising energy costs are driving enthusiasm in green design and construction. There are 76 million residential buildings and nearly five million commercial and institutional buildings in the United States, consuming 37 percent of the nation's energy use and 68 percent of its electricity.

"We're looking at an escalating energy-cost environment," says Art Titus, vice-president of operations for Noisette Co., which is redeveloping 350 acres of a former navy base in North Charleston. All commercial buildings, including high-rise residential structures, will be LEED-certified in the Noisette project. "More than anything else, the LEED standard is about energy efficiency."

Many Americans have become concerned about indoor-air problems linked to chemicals found in some building materials, carpets, and furniture, particularly VOCs. Such chemicals have been blamed for asthma and other respiratory problems.

Vander Mey of Clemson University says that many conventional structures, especially large ones, are rife with problems that annoy and distract occupants. "There are more than 1,000 faculty and staff on campus, and you wouldn't believe how many 'hot and cold calls' there are. 'My office is too hot,' or 'My office is too cold,' or 'I can't open a window.'" Faculty and staff have shown great enthusiasm, Vander Mey says, for the university's commitment to the LEED process.

LEED appeals to Americans' competitive urges, according to

LEEDING OFF. *Gene Dinkins, president of Cox and Dinkins, Inc., stands in front of his company's Columbia office building—the first commercial structure in South Carolina to receive Leadership in Energy and Environmental Design (LEED) certification from the U.S. Green Building Council. "I wanted to have a good office to work in, and to be energy efficient," says Dinkins. "But the paperwork involved is unbelievable."*

PHOTO/WADE SPEES

Robert Cassidy, editor-in-chief of *Building Design & Construction*. In a November 2003 report, Cassidy writes, "It takes a complex, multi-faceted problem—sustainable design and development—and turns it into a game, with clearly established rules." Cassidy admires "its simplicity, its competitive structure, its ability to provide a branded metric."

Government agencies are building about half of the LEED-registered structures in the country. Institutions such as colleges and universities, foundations, schools, and environmental organizations comprise another large fraction.

More than 30 localities—including Atlanta, Chicago, Los Angeles, and Seattle—have adopted laws requiring all public agencies to adhere to LEED standards. Portland, Oregon, and Scottsdale, Arizona, require LEED's

second-highest certification standard—gold—for all new city facilities.

In April 2005, Washington became the first state to require use of LEED for state-funded projects larger than 5,000-square feet and for major renovations. The General Services Administration, which manages all non-defense federal buildings, requires that new projects must gain LEED certification.

CHALLENGES TO GREEN

It's a brick, two-story Arts & Crafts-style building located not far from downtown Columbia. From the outside, it resembles a large single-family home, though it's the headquar-





ters of Cox and Dinkins, an engineering-and-surveying firm, and the first LEED-certified commercial structure in the state. With four miles of data and voice lines, “it’s a high-tech building,” says Gene Dinkins, president of Cox and Dinkins, “with a down-home feel.”

Although Dinkins is obviously proud of his new office, he found the LEED process time-consuming and often exasperating. Building owners must gather piles of receipts proving that they followed certification requirements. “The documentation and follow-up are voluminous,” says Dinkins, adding that few private companies have staff time to devote to the process.

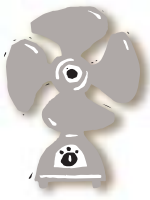
Even so, Ted Chalgren, director of business development at Cox and Dinkins, says building a LEED-certified structure was worth the effort. “It has been an absolute bonanza for us in terms of marketing. Having this building gives us a credential we wouldn’t ordinarily have.”

There are 28 certified or registered LEED projects in South Carolina. Ten are commercial; academic institutions and local school systems own 14 projects; government or nonprofits own four.

Which businesses are likeliest to embrace whole-building principles? Companies constructing new headquarters or offices can

gain direct health and productivity benefits by building green. By contrast, a company constructing a warehouse where few workers are located is probably less likely to consider a whole-building approach for that particular project, says Karolides of the Rocky Mountain Institute.

Relatively few speculative developers of commercial buildings have embraced sustainable design; they build structures only to sell them. Even so, the market for speculative green structures should grow over time. “If you can certify that a building is green through the LEED process,” says Karolides, “a developer could promote and sell that.”



IMPROVING INDOOR ENVIRONMENTS

The price tag for fresh air is falling at Furman University.

Mechanical and ventilation codes require that outdoor air must be circulated throughout occupied buildings, helping reduce instances of “sick building syndrome.”

Pumped-in fresh air almost always has to be cooled or heated. In a conventional structure, mechanical and ventilation systems distribute the same amount of warmed or cooled fresh air whether the building is empty or full of people. Heating-ventilating-air-conditioning (HVAC) systems thus are operating when they are not necessary. “That’s where it costs money for energy consumption,” says Mary Pat Crozier, Furman University’s capital construction manager.

Furman installed sophisticated ventilation-management systems, which monitor building occupancy, so that HVAC equipment can automatically turn on or off.

In Herman N. Hipp Hall, a gold-rated LEED building that opened in 2002, sensors measure carbon-dioxide levels. As people breathe, they exhale carbon dioxide. Greater numbers of people in an enclosed building produce more carbon dioxide. When there are higher gas levels, more fresh air should be pumped in.

Sensors pick up changing levels of carbon dioxide and send a signal to the building’s HVAC system, which responds by distributing fresh air. When more people leave the building, the sensors notice the change, and the ventilation system distributes less fresh air.

Crozier estimates that the building’s various green features save the university \$15,000 a year in energy costs. Furman University, with two more buildings in the LEED pipeline, is aiming for silver rating for all new and renovated structures.

There are countless new tools and products that can be used to save energy in new buildings, yet many structures continue to be inefficiently lighted, cooled, heated, and ventilated.

Why? Some developers are trying to do the right things. They install energy-saving appliances and high-performance windows. Yet, in many cases, these efforts don’t make much of an impact.

The reality is that if green features aren’t carefully integrated, they probably won’t reduce waste, experts say. Marketing the “whole-building” concept—that’s LEED’s innovation in the area of sustainable development.

Whole-building principles have been embraced by a number of major corporations: Toyota, Honda, Ford, Nestlé, Starbucks, Disney, and Gap. Nationally, “it’s a good mix” of different kinds of owners embracing environmentally friendly construction, says Taryn Holowka, communications manager for the U.S. Green Building Council.

COST SIGNIFICANTLY FAVORS GREEN

Not long ago, constructing a green building was thought to be exorbitantly expensive—up to 15 percent more costly than a conventional one. But that notion is outdated. Building green costs about the same as conventional construction if careful planning is done early, according to academic administrators in South Carolina who have managed LEED projects.

An October 2003 report commissioned by the Sustainable Building Task Force, representing more than 40 California government agencies, found that a green building (LEED-registered) requires spending two percent more money up front than a conventional one. A two-percent premium on a sizable building can mean at least tens of thousands of dollars in first cost. Yet the report noted that over the 20-year life of a building, green features

will pay back the original investment more than 10 times.

Once long-term upkeep is factored in, a green building actually costs less than a conventional structure. Environmentally friendly buildings have lower operating costs for energy, water, waste disposal, operations, and maintenance, as well as savings from increased productivity and health among occupants.

“The operations and maintenance of a building far outweigh the capital costs of a project,” agrees Vander Mey of Clemson. “A project that costs \$10 million during construction could cost far more than \$10 million over 50 years on operations and maintenance. Anything you can do to save on operations and maintenance will pay back many, many times.”

Some green buildings can offer even greater reductions in energy bills than their owners anticipated. At USC’s West Quad dorms, students will be able to examine their energy use via three interactive touch screen displays located in the lobby. They can also access this information on the Web. Students who use less energy than the student average are eligible for award money of \$100 to \$150. Each room in the building has its own thermostat, so students can save on cooling and heating.

West Quad was designed to be 55 percent more efficient in electricity use than conventional structures of the same size. But because students have made extra effort to save energy, West Quad functions 66 percent more efficiently in electricity use.

Now, the building industry nationwide should learn from green innovations of academia and government, says Chalgren of Cox and Dinkins. Building green can often mean spending more upfront, but saving a lot of money down the road. “Everybody’s still looking at first cost of a building,” says Chalgren. “That’s looking at the wrong thing. We’ve got to transform the thinking of the marketplace.”

Learn Better With Natural Light

Almost 16 million students in colleges and universities—plus millions more faculty and staff—are using vast resources as they work, study, and live in campus buildings, many of which are artificially lit around the clock. Artificial lighting consumes at least 20 percent of energy costs in many commercial and institutional buildings. Millions more K-12 students struggle to learn in harshly lit classrooms.

That's why some schools are embracing ways to provide more natural lighting in classrooms and dormitories. Builders are installing skylights called "light wells," building "light shelves" on windows, and installing special film on glass windows, all of which allow in natural light but reduce heat and glare and electricity costs.

"Daylighting" strategies, experts say, significantly influence how students learn. Two studies by the Hescong Mahone Group, a consulting company for California energy agencies, showed that the degree of daylighting in schools affects student test scores.

In a 1999 study, the consultants examined natural lighting's effects on learning in the school districts of Seattle, Washington, and Fort Collins, Colorado. Students in classrooms with the most natural lighting had 7 percent to 18 percent higher end-of-year scores compared to students in classrooms with the least daylighting.

But just allowing in more sunshine isn't enough. A follow-up study in 2003 by Hescong Mahone compared the performance of third-grade through sixth-grade students in 500 classrooms in 36 schools in the Fresno Unified School District in California.

The study showed that a range of classroom attributes beyond natural lighting—such as ventilation, indoor air quality, and the acoustic environment—affects student learning. Researchers came to a provocative conclusion: that physical conditions in classrooms can predict student performance as much or more than teacher characteristics, number of computers, or attendance rates.

Too much sunlight, though, can be harmful, according to the study of Fresno schools. Glaring natural light pouring through windows inhibits student learning,



NATURAL GLOW. North Charleston Elementary School, which opened in August 2005, has many large windows allowing in natural light, plus low-cost techniques to reduce glare.

PHOTO/WADE SPEES

especially in math classes where teachers most often use chalkboards, and in rooms where teachers don't have access to blinds or curtains to control glare. Some students can't see math problems worked on blackboards. It's important, the report noted, that teachers are able to control the degree of natural lighting in classrooms.

Physical conditions in offices strongly affect worker productivity, too. In another 2003 study, also by Hescong Malone, workers in a phone-call center were shown to be more productive when they had the best possible view out a window, processing calls six to 12 percent faster than those with no view. ♡

GREEN RESIDENTIAL MARKET EXPANDING

The risk-averse homebuilding industry has started to embrace the growing consumer market for environmentally friendly houses.

Homebuilders are generally known for their caution and wariness of innovation; they make a living by using the tried-and-true. But some developers are turning to green-building techniques, which offer a competitive advantage and attract savvy customers.

"The market has changed," says Stephen Johnston, a licensed contractor and owner of Charleston Classic Homes, LLC. "I can be stubborn to change sometimes. I like what I've got. But consumers are getting more educated, and they are coming to you with so much information from the Internet. They see different alternatives, and they're asking 'Why is he using this product when there's something better on the market?'"

Charleston Classic Homes has completed the first EarthCraft House on the coast. The high-performance 2,800-square-foot home, now for sale, is located in the Seaside Plantation neighborhood on James Island.

Since 1999, the EarthCraft House program has helped guide construction of more than 1,700 energy-efficient and environmentally sensitive homes in Georgia. The program trains builders in ways to tighten ductwork, improve insulation, and choose HVAC systems sized appropriately for each particular home, among other details.

The EarthCraft House started as a program of the Greater Atlanta Home Builders Association in partnership with the Southface



INSIDE OUT. Stephen Johnston, owner of Charleston Classic Homes, built the first EarthCraft House in coastal South Carolina, and he's building seven more in Oak Terrace Preserve, a new neighborhood in North Charleston.

PHOTO/WADE SPEES

Energy Institute, a nonprofit organization based in Atlanta. To qualify, a builder must be a member of the local homebuilders' association, join the EarthCraft House program, and complete a training course.

The S.C. Energy Office, Greenville Home Builders Association, and Charleston Trident Home Builders Association have also forged partnerships to encourage construction of EarthCraft Houses in the South Carolina upstate and along the coast. The S.C. Energy Office pays for training classes for builders and inspectors, and also pays for EarthCraft inspections.

Five builders in the Charleston area are constructing EarthCraft homes. "In Charleston, we have a pretty good buzz," says Jeff Huntley, coordinator for the EarthCraft program in coastal South Carolina and Georgia.

To be labeled an EarthCraft House, each structure must be certified by a trained inspector, meet energy-efficient requirements, and include other green features. Inspection is based on a flexible point system. Builders must have a minimum of 150 points to be certified in areas such as site planning, energy-efficient techniques and equipment, resource-efficient design and materials, waste management, indoor-air quality, and water conservation.

"The EarthCraft program allows me flexibility to work with the options and get certification," says Johnston. The cost premium for building an EarthCraft House was about one and one-half percent over a conventional one, he says.

The city of North Charleston and the Noisette Co. are developing a new neighborhood called Oak Terrace Preserve, where nine

builders must comply with a brand-new construction standard, based closely on EarthCraft, for the hot-and-humid and hurricane-prone coast. Charleston Classic Homes is building seven homes in that neighborhood.

"Noisette is going above and beyond EarthCraft," says Darbis Briggman, building director for the city of North Charleston. "We're there with them. Our building inspectors are getting continued education, so we'll have that knowledge to inspect the homes."

"This isn't just a requirement by do-gooders," says Art Titus, vice president of operations for Noisette Co. Sustainable design and construction "have found real legs in a marketing environment."

LEEDING GROWTH

Arriving soon in several regions around the country—the nation's most influential green-building rating system is dipping into the huge home-construction market.

In 2005, the U.S. Green Building Council launched a pilot-test program for the Leadership in Energy and Environmental Design (LEED) for Homes rating system. Eleven programs—a mix of non-profit organizations, state energy agencies, and universities—have been chosen to administer the pilot effort in various regions.

"It's better to have local providers administer it because they understand local needs," says Taryn Holowka, communications manager for the council.

Regional programs are training a select number of builders for LEED for Homes requirements. The programs will test the pilot system to ensure its practicality and effectiveness.

The Southface Energy Institute is the regional LEED for Homes provider in the Southeast. "Once we test all aspects of the pilot program, we'll roll it out in Spring 2007," says Laura Uhde, a project manager for the Southface Energy Institute. LEED for Homes is aimed at the top quarter of the residential



CRAFTED WITH CARE. Since 1999, the EarthCraft House program has helped guide construction of more than 1,700 energy-efficient and environmentally sensitive homes in Georgia. The first EarthCraft House along the South Carolina coast was completed recently on James Island. PHOTO/WADE SPEES

market, while the EarthCraft House program is targeted to the entire cost range of homes.

NEW LEED SYSTEMS

The U.S. Green Building Council is also working on a preliminary pilot draft for a rating system called LEED for Neighborhood Development. This rating system is expected to address entire neighborhoods, considering land resources, energy and water use, transportation and mobility, and

community design. "You could have an entire neighborhood be certified, and the homes certified within it," says Holowka.

Due to popular demand, the LEED program is also spreading into new categories for commercial and institutional structures.

The original LEED rating program, created in 2000, is now called LEED for New Construction.

"People liked the original program, but some people already had a building and wanted certification for operations and maintenance," says Holowka. This demand led to a proposed rating system, LEED for Existing Building Operations, now being pilot tested.

Tenants leasing space in office, retail, and institutional buildings can use the new LEED for Commercial Interiors rating system. One more rating system being pilot tested, LEED for Core and Shell, applies to owners seeking environmentally friendly construction of exteriors and floors of buildings. "Demand is driving creation of these new rating systems," says Holowka. ♡

Reading and Web sites

Building Better Buildings: An Update on State Sustainable Building Initiatives. Sacramento: California Integrated Waste Management Board, 2003.
www.ciwmb.ca.gov/GreenBuilding/Blueprint/2003/

Energy Action: www.energyaction.net/main/index.php

Laboratories for 21st Century: www.labs21century.gov/

National Wildlife Federation Campus Ecology: www.nwf.org/campusecology/index.cfm

South Carolina Energy Office: www.state.sc.us/energy/

Sustainable Universities Initiative: www.sc.edu/sustainableu/

U.S. Green Building Council: www.usgbc.org/

EBBS&FLOWS

South Carolina/ Georgia Regional Ocean Sciences Bowl Columbia, South Carolina Feb. 25, 2006

This competition is intended to increase knowledge of the oceans on the part of high-school students, their teachers and parents, as well as to raise the visibility and public understanding of the national investment in ocean-related research.

Twenty-five sites around the nation have been selected to host regional competitions. Regional winners will compete in the National Ocean Sciences Bowl. For more information about the South Carolina/Georgia regional competition, contact Anne Miller, abmiller@sc.edu or (803) 777-3927.

Southeastern Estuarine Research Society

Ponte Verde Beach/ St.
Augustine, Florida
March 30-April 1, 2006

Mark your calendars for the Spring 2006 meeting of the Southeastern Estuarine Research Society (SEERS). The society promotes discussion of estuarine research, science, and management, promotes discussion of current research projects and management issues, and encourages participation of student colleagues. Contact Denise Sanger at sangerdm@dhec.sc.gov for more information.

Regional Coastal Community Workshop Series

The S.C. Sea Grant Consortium will host three Regional Coastal Community Workshops for South Carolina public officials in spring '06. This workshop series targets local volunteer boards, council members, and government staff. Scientists will present information on population-growth projections and the state of scientific knowledge related to land-use impacts on coastal and marine resources. State agency officials will discuss coastal-zone management and identify sources of technical assistance. The workshop series aims to help establish productive contacts between localities and state resource-management agencies. For more information contact April Turner, april.turner@scseagrant.org, or visit www.scseagrant.org.

SUBSCRIPTIONS ARE FREE UPON REQUEST BY CONTACTING: ANNETTE.DUNMEYER@SCSEAGRANT.ORG


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